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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/028,014	12/21/2001	Thomas Patrick Dawson	80398P486	2412

8791 7590 06/23/2004

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EXAMINER

CASCHERA, ANTONIO A

ART UNIT PAPER NUMBER

2676

DATE MAILED: 06/23/2004

11

Please find below and/or attached an Office communication concerning this application or proceeding.

14

# Office Action Summary

Application No.

10/028,014

Applicant(s)

DAWSON, THOMAS PATRICK

Examiner

Antonio A Caschera

Art Unit

2676

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 15 April 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4 and 8-15 is/are rejected.
- 7) ☒ Claim(s) 5-7 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 December 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. Receipt is acknowledged of a request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e) and a submission, filed on 4/15/2004.

### ***Claim Objections***

2. Claim 14 is objected to because of the following informalities:
  - a. The term, "...projection angle = N eye point  $\delta$  value," (see line 2 of the claim) does not clearly indicate the limitation of the claim. The office suggests inserting an "\*" or "x" to emphasize the multiplication in the formula so that the phrase would read, "...projection angle = N \* eye point  $\delta$  value," or something to that effect.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1-12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Art Unit: 2676

Claims 1 and 8 recite the limitation "each polygon fragment" in lines 7 and 8 of claims 1 and 8. There is insufficient antecedent basis for this limitation in the claim. The claims solely recite, "polygon data" and "polygon surface."

In reference to claims 2, 4, 9-12 and 14, claims 2, 4, 9 and 14 recite the limitation of multiplying an eye point angle by a value "N". Such a variable "N" is not defined within the claims therefore making the claims indefinite for not particularly pointing out such a value. Such a variable is crucial towards the substance of these claims as a value of zero could be equated to "N" therefore making the result of multiplying eye point angle data and "N" equal to zero. Therefore this value must be clearly pointed out and defined in the claims. The office suggests adding a, "wherein" clause after the original text of these claims to read, for example, "wherein the value N represents..." or something to this effect.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1, 3, 8, 13 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Van Hook (U.S. Patent 5,982,939) in view of Migdal et al. (U.S. Patent 5,760,783).

In reference to claims 1, 8, 13 and 15, Van Hook discloses a system and method of antialiasing edges of texture that is being projected onto polygon surfaces (see column 2, lines 22-24). Van Hook discloses objects in an image being magnified by textures being applied to a

Art Unit: 2676

polygon surface wherein "...the polygon surface is being magnified such that each texel of the texture covers four pixels of the polygon surface," (see column 3, lines 20-28 and Figure 4). Van Hook discloses selecting a set of polygon data to magnify by segmenting the polygon surface into groups of four pixels and mapping each group of four pixels to one texel in the texture (see column 3, lines 40-43). Van Hook does not explicitly disclose retaining eye point angle data within a vertex data passed to a graphics rendering pipeline however Migdal et al. does. Migdal et al. discloses an apparatus and method for providing texture by using selected portions of a texture MIP-map (see column 3, lines 6-8). Migdal et al. discloses passing polygonal description of a display image or scene from a main processor to a graphics subsystem (see column 6, lines 48-50). Migdal et al. also discloses that as the viewer eye point or field of view is changed, texel data forming a clip-map must similarly change (see column 10, lines 18-21 and "X" and "X'" of Figure 5). Note, the office interprets that the eye point angle of applicant's claims is formed by the field of view line of Migdal et al. drawn from a viewpoint X to the center of the MIP-map texture pyramidal point (see Figure 5, axis O'), such a viewpoint retaining angle data as the point is moved, the connecting axis (O') forms a different angle. Further, even though such an angle is formed on the texture data, Migdal et al. discloses that texture is mapped to the pixels forming polygon data (see column 12, lines 63-67) and therefore the eye point angle is formed relative to the polygon surface. Note, the office interprets that Migdal et al. inherently discloses perturbing viewpoint angle data at polygons as changes in viewpoint affect changes in textured polygon data as the view of the polygon data maybe skewed or distorted as the viewpoint is shifted. Further note, the office interprets the meaning of the term, "perturb" as broadly as possible to be, "to move" or "to change" because the real act of "perturbing" as applied to the invention is not

Art Unit: 2676

described in the independent claims and therefore can be interpreted as such. Migdal et al. also discloses incorporating a texture to each perturbed shift in viewpoint angle whereby the clip-map of the current viewpoint adds or subtracts texture data from the clip-map to compensate for the new viewpoint angle (see column 3, lines 38-41 and Figure 6B). Although Migdal et al. discloses the textures to be referenced by S,T coordinates (see column 16, lines 5-6), neither Van Hook nor Migdal et al. explicitly disclose the texture coordinates having U and V coordinates however, at the time the invention was made, it would have been obvious to one of ordinary skill in the art to reference the texture map of Migdal et al. with U,V coordinates and not S,T coordinates. Applicant has not disclosed that using specifically U,V coordinates provides an advantage, is used for a particular purpose, or solves a stated problem. One of ordinary skill in the art, furthermore, would have expected Applicant's invention to perform equally well with the referencing of texture data using S,T coordinates because exact naming of texture coordinates is a matter of design choice as preferred by the designer and to which best suits the application at hand. Therefore, it would have been obvious to one of ordinary skill in this art to modify Migdal et al. to obtain the invention as specified in claims 1 and 8. Further, the office sees no immediate criticality in the limitation of specifically naming texture coordinates using U and V axis. It would have been obvious to one of ordinary skill in the art at the time the invention was made to implement the magnification techniques of polygon data of Van Hook with the viewpoint texturing techniques of Migdal et al. in order to efficiently implement large texture maps for display purposes so as to minimize attendant memory and data retrieval costs (see column 2, lines 61-63 of Migdal et al.) in polygon texturing applications. Further, in reference to claim 8, although Migdal et al. discloses a computer system for implementing the above disclosed

Art Unit: 2676

method, comprising main memory, read only memory and mass storage devices, neither Van Hook nor Migdal et al. explicitly disclose instructions that, when executed by a processor, cause the processor to perform the above disclosed methods. It is well known in the art of computer processing to store some sort of executable instructions in order to enable output from the computer. Computer executable instructions are used to perform some sort of task whether it be, producing output to a display or performing arithmetic operations on data (Official Notice). It would have been obvious to one of ordinary skill in the art for Van Hook and Migdal et al. to implement some sort of executable instructions to perform the disclosed processing methods, because it is well known in the art that computer executable instructions are used to control computer hardware in performing computing functions.

In reference to claim 3, Van Hook and Migdal et al. disclose all of the claim limitations as applied to claim 1 above, Migdal et al. discloses incorporating a texture to each perturbed shift in viewpoint angle whereby the clip-map of the current viewpoint adds or subtracts texture data from the clip-map to compensate for the new viewpoint angle (see column 3, lines 38-41 and Figure 6B). Note, the clip-map of Migdal et al. is shifted by an amount relative to the shifted viewpoint.

### ***Response to Arguments***

5. Applicant's arguments, see pages 5-7, filed 3/12/04, with respect to the rejection(s) of claim(s) 1-5, 8-10 and 12-15 under 35 USC 103 have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Van Hook and Migdal et al..

*Allowable Subject Matter*

6. Claims 5-7 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

In reference to claim 5, the prior art of record (Van Hook (U.S. Patent 5,982,939) and Migdal et al. (U.S. Patent 5,760,783)) does not explicitly disclose interpolating eye point  $\delta$  angle data for each texel to be produced between texels including the vertices in combination with the further limitations of claims 1 and 3.

In reference to claim 6 and 7, claims 6 and 7 depend upon objected to claim 5 and are therefore also objected to.

7. Claims 2, 4, 9-12 and 14 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

*Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Antonio Caschera whose telephone number is (703) 305-1391. The examiner can normally be reached Monday-Thursday and alternate Fridays between 7:00 AM and 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Bella, can be reached at (703)-308-6829.



Art Unit: 2676

**Any response to this action should be mailed to:**

Commissioner of Patents and Trademarks

Washington, D.C. 20231

**or faxed to:**

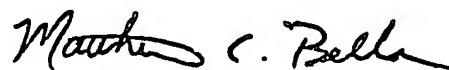
**(703) 872-9314 (for Technology Center 2600 only)**

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive,  
Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding  
should be directed to the Technology Center 2600 Customer Service Office whose telephone  
number is (703) 306-0377.

aac

5/10/04



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